

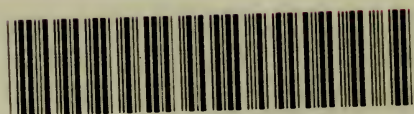
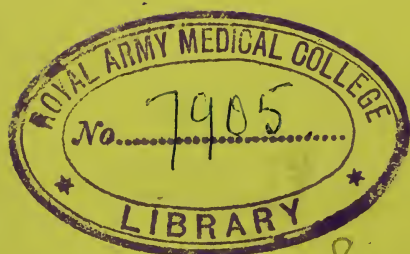
THE  
ADVANCES IN MEDICINE DURING  
THE PAST THIRTY YEARS.

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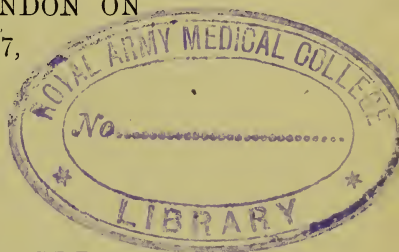
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# THE ADVANCES IN MEDICINE DURING THE PAST THIRTY YEARS.

BEING THE  
PRESIDENTIAL ADDRESS DELIVERED AT THE  
OPENING OF THE 135<sup>TH</sup> SESSION OF THE  
MEDICAL SOCIETY OF LONDON ON  
OCTOBER 14<sup>TH</sup>, 1907,



BY

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F.R.C.P. LOND.,

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THE MIDDLESEX HOSPITAL ; AND CONSULTING PHYSICIAN  
TO THE HOSPITAL FOR CONSUMPTION AND DISEASES  
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FELLOWS OF THE SOCIETY,—The honour attaching to the Presidency of your Society increases with the lapse of years, and I need not assure you that I value very highly the privilege of occupying this Chair during its 135th Session.

The friendly feelings which I have long entertained for the Society began in 1879, when I was elected a Fellow, since when I have been permitted to serve it in various capacities, a service which I hope to complete by the zealous discharge of the duties of the office to which by your kindness I have been called.

The Society has, during the past year, taken a momentous decision—to preserve its history, its honourable traditions, and its individuality.

It is not my intention to review or to further refer to the prolonged negotiations which have been thus brought to a close. I shall content myself with saying that I cordially agree with the decision which has been arrived at under the influence of a wise conservative instinct.

The Society wishes all prosperity to its neighbours now united

under one roof, and desires to work in cordial harmony with them for the advancement of learning and the promotion of the science and art of medicine.

But it behoves the Society to be up and doing, as it will now be judged by a new standard and will be called upon to justify its position, and to this end I would specially appeal to the Fellows to give us during this Session an even greater measure of their support, both by their attendance at the Meetings and the reading and discussion of papers, and by bringing to our Clinical Evenings such cases of unusual interest as may come under their notice.

I think you will agree that the programme which you have received of the work which has been already arranged shows that we may look forward to a Session of unusual interest, comprising subjects which range over a wide field of medicine and surgery, thus fulfilling one of the best traditions of the Society, and one which has more than any other conduced to its vitality: for had it at any period of its long career come to be regarded as the exponent of some narrow specialism, its extinction as the Medical Society of London could not have been far distant.

We of this generation are fortunate in living in a time of great progress in all branches of medicine, using that term in its widest sense. That this is such a period in regard to surgery no one will deny. That it is equally so of medicine the laity are by no means assured; indeed, many—and those by no means persons of small understanding—are frequently heard to deplore the fact that, notwithstanding the great advance of surgery during the past 30 years, medicine stands nearly where it did. I propose to ask your indulgence for an attempt to remove this too prevalent misconception.

Whatever view we may hold of the degree of importance to be attached to the opinions of laymen upon such a matter, it will hardly be denied that this view, if widely held, does not tend to enhance the honour and esteem of the physician. Indeed, he is just now much beset, is on his trial, and almost needs to justify his existence.

I was lately present on an occasion when a speaker quoted those appreciative verses from the xxxviiiith chapter of Ecclesiasticus—

1. Honour a physician according to thy need of him with the honours due unto him: For verily the Lord hath created him.



2. For from the most High cometh healing: And from the king he shall receive a gift.

3. The skill of the physician shall lift up his head: And in the sight of great men he shall be admired.

I regret to state that a subsequent speaker threw doubt upon the rendering of the first verse and suggested that the more correct reading was—

For verily the Lord hath created *even* him.

I am glad to find that the revised version gives no support to this view.

The surgeon is daily making inroads into the territories which until lately the physician considered his own, and a high authority has recently had to deny that he ever advised the public to abstain from drugs.

It was about 30 years ago that I had to decide for myself whether I should follow the path of surgery or medicine, and at that date the practice of surgery presented to my mind but few attractions. Had I to make the same election now I might decide differently. I had but recently served as house surgeon to one of the foremost surgeons of the time, Sir William Fergusson, who will always be remembered with affection by those with whom he was associated. The theatre of King's College Hospital was often filled to the topmost tier with men, many of whom had come from distant lands, to see Sir William Fergusson operate, and certainly his dexterous hands were worth watching at their work, and with that the visitors were well satisfied. No anxiety was shown to learn the results of those great operations, but looking back upon them in the light of our present-day knowledge, one sees that they were almost appalling. Pyæmia and septicæmia were rife, suppuration of wounds was the rule, and the opening of the general cavity of the peritoneum in the course of an operation meant almost certain death to the patient. Maggots were not uncommonly found when dressings were changed, and I have heard a surgeon when informed on his visit that several cases of erysipelas had appeared in his ward, reply in cheery tones, "Ah, I've often known the wounds do better after erysipelas." At that time a successful ovariectomy in a general hospital was the talk of medical London. The younger surgeons of the present day will hardly believe that at King's College Hospital the badge of the house surgeon on operating days was a bunch of ligatures worn like a flower in the button-hole of his operating coat; not a white

and spotlessly clean garment as of to-day, but the oldest and dirtiest coat that he ever put on, which was hung up after use in the ante-room of the operating theatre until required on the following Saturday. Little wonder that under such conditions secondary hæmorrhage was common and often fatal, and that the general mortality after operations was enormous. But we knew no better until Lister, whom the whole world now delights to honour, but whose reception in London I remember but shall not describe, by applying the principles of Pasteur to the investigation of the causes of inflammation in wounds, was led to discoveries which illuminated the whole field of surgical practice and rendered possible those operations which are the commonplaces of to-day. Surgery had, so to speak, but one victory to win; the triumph over sepsis laid at its feet vast territories where the knife was scarcely known, and in some of which the physician had hitherto held a feeble sway. Not so with medicine, which is required to attack separately problems of infinite difficulty, presented by each disease and every organ of the body, and finds no single light which illumines every dark recess of its ignorance. Yet, as I hope to show, medicine can claim its triumphs, too, and stands to-day as far removed as surgery from the position occupied in 1877.

In no department has greater progress been made during that period than in that of the infectious diseases. The pathogenic organisms of most of these affections have been discovered and their cultural and other characters made known. Some of the most important have, it is true, so far eluded research, but we cannot doubt that in course of time all will be recognised. The changes and reactions that take place in the bodies of man and animals in consequence of infections have been the subject of minute study. The subject of the immunity from the effects of poisons and diseases is by no means new. Uncivilised man has been engaged for centuries in the search for agents capable of giving such protection. The problem of producing immunity against snake-venom engaged the minds of the medicine men of some of the native races of Africa long before the days of Jenner, and their attempts to produce such a vaccine appear to have met with considerable success. The development of immunity which is the natural end of many infectious diseases was first artificially produced among civilised peoples by the inoculation of small-pox, and later by means of vaccination.

To trace the various steps by which our present knowledge of immunity and serum-therapeutics has been reached is too great a task for such an occasion as this. I must content myself by a mere mention of the most epoch-marking discoveries. All have originated from Pasteur's work on fermentation, which led him to the generalisation that infectious diseases are particular fermentations and due to specific micro-organisms. This he first established with regard to anthrax, chicken cholera, and swine erysipelas. In 1878, Pasteur stated that the streptococcus was the cause of puerperal fever. In 1881, Koch discovered the bacillus of tubercle. In 1882, the Klebs-Löffler bacillus was recognised as the cause of diphtheria. In 1888-90, Roux and Yersin discovered the diphtheria toxin, and this was followed in 1890 by Behring's researches on the diphtheria antitoxin, from which discovery serum-therapeutics originated. In 1889, Kitasato isolated and cultivated the tetanus bacillus, and in the following year Behring and Kitasato showed the means by which animals can be rendered immune to the toxin which it produces. The proof given by von Behring that an antitoxic serum is capable of protecting healthy animals against fatal doses of the toxin and in curing those which are already ill from the disease was one of the greatest triumphs in science and in its application to the art of healing. It is now, however, clear that a like success in the production of immunity and in the cure of the sick cannot be expected in every infectious disease, and must necessarily be governed by the nature of the pathogenic bacteria, and particularly by the production of a diffusible toxin.

The discovery by Metchnikoff of phagocytosis, supplemented as it has been recently by the very important work of Sir A. E. Wright and Captain S. R. Douglas, I.M.S., on opsonins, has gone far to give a definite meaning to a term—the resisting power of the body—which in ignorance we have so long employed.

The year 1881 will always be memorable in medicine as the date of the discovery by Koch of the bacillus of tubercle, thus putting an end to the controversy which raged at the time when I was a student, as to the pathology of phthisis or consumption. To those who had consistently supported the views of Laennec on the unity of phthisis it came as a confirmation of a belief long held that the disease was due to the presence in the lungs of a micro-organism responsible for lesions in nearly every organ of the body. Having a strong belief in the importance of a name, I ventured, at

a later date, to urge that we should bring our nomenclature of the disease into line with that of other tuberculous affections, and it is some satisfaction to observe that the term "pulmonary tuberculosis," notwithstanding its length, has to a large extent displaced the old names. Once it was recognised as a tuberculous affection it became obvious that it should be treated on lines similar to those which had for years been followed with success in the case of children suffering from tuberculous or strumous disease of bones and joints—namely, exposure to fresh air with plenty of good food.

When I opened the discussion on the sanatorium or open air treatment of pulmonary tuberculosis at the Royal Medical and Chirurgical Society in 1899 it required some courage to advocate what many thought was only one more addition to the long list of remedies which they could recall which had enjoyed a short vogue and then disappeared to the limbo of the forgotten. Indeed, there are some who still appear to doubt whether it is a method of any value. To such I would extend an invitation to visit the sanatorium of the Brompton Hospital for Consumption and Diseases of the Chest, at Frimley, where they will have an opportunity of witnessing the results obtained, when, instead of keeping the patients at rest in *liegehallen*, they are, as soon as the condition of the disease permits, put to carefully graduated labour, ending with work which one is accustomed to associate with the occupation of a navvy; indeed, their appearance justifies the name which I once ventured to give them, "the consumptive navvies." On one day in the year—and next year it will be on June 27th—the visitor will have the opportunity of seeing not only those under treatment but many former patients—and they now number 288—who have thus been restored to health and are following not "some light occupation in the open air," but in most cases that which they followed before their illness, which is generally the only one at which they can earn a living. I am glad that we are to have an opportunity during the session of hearing from Dr. M. S. Paterson, the medical superintendent at Frimley, to whom the whole credit of this development of the sanatorium treatment is due, a fact which it is necessary to emphasise, an account of the results so far obtained from "graduated labour." On the same evening Dr. Inman, the bacteriologist at the Brompton Hospital, will bring forward some highly interesting observations on the opsonic index



in relation to graduated labour in tuberculous subjects. I am disposed to think that the publication of these two papers will mark an epoch in the treatment of pulmonary tuberculosis.

Writing in 1876 of typhus fever, Bristowe said: "No European country is free from its occasional epidemic prevalence, but from Ireland it is probably never entirely absent, and, indeed, Great Britain and Ireland may be regarded as its headquarters." There may have been sanguine persons at that time who foretold the practical disappearance of the disease at no distant date, but I suspect that such prophets would have been received without honour. Is it not possible that the next 30 years will witness something of the same character in relation to tuberculosis? The day of compulsory notification of that disease is not, I think, far off, and short of that, it has been shown that the visitation of the homes of sufferers who apply for treatment at hospitals and the distribution of leaflets giving information of use to them and to their families are measures of prevention of the greatest value. The provision of hospitals where such sufferers as are especially dangerous to the community may accept a voluntary isolation could be readily effected, for in the small-pox hospitals they already exist. Such institutions should be unnecessary in any well-vaccinated community, and are but a monument to the triumph of ignorance and faddism over knowledge and common sense.

The discovery by Schaudinn of the *Spirochaeta pallida* as the organism of syphilis is only second in importance to that of Koch just mentioned, and is likely to prove of great value in the diagnosis of that disease. Fortunately, in syphilis—at any rate, in certain stages of the disorder—we have remedies of undoubted efficacy, and from accurate diagnosis to adequate treatment is but a short step. Would that it were always so. We must hope, by the recognition and thorough treatment of syphilis in its manageable stages, to prevent those later and more remote effects of the poison on the brain and spinal cord which are to a far less degree amenable to specific treatment.

The introduction of the antitoxin treatment of diphtheria has, according to the most trustworthy statistics, diminished the case mortality from that disease by one-half, and the reduction in the case mortality of laryngeal cases has been the same. The significance of this latter fact will be best appreciated by those who can remember that one of the greatest triumphs of a house surgeon in

times gone by was to have a successful case of tracheotomy in diphtheria.

Thanks to the researches of Pasteur, many thousands of those bitten by rabid dogs have been saved from death. The demonstration of the fact that hydrophobia or rabies must be due to a specific micro-organism, although the organism itself still remained unrecognised, alone rendered possible that stout resistance by Mr. Walter Long to the clamour of dog-loving ignorance, a firmness for which he has not received nearly adequate thanks, but which has led to the disappearance of hydrophobia from this island. A single case of hydrophobia watched to its inevitable end will make an impression that will last a life time.

Notwithstanding the marked improvements which have been effected during the last three decades in the sanitary conditions throughout the country, typhoid fever still continues to claim its victims by thousands, the total deaths from that cause being given in the Registrar-General's returns for 1905 as 3,052. It is, however, satisfactory to learn that the rate per million living was the lowest on record. The pathogenic organism of the disease has been identified and the discovery of the agglutinative phenomenon or Widal reaction has greatly facilitated its diagnosis, as the reaction, when positive, is undoubtedly of great value, provided that a proper technique has been observed, and that a previous attack of typhoid fever can be excluded. The great length of time during which the bacillus may lie dormant within the body, and especially in the gall-bladder and urinary bladder, has shown the necessity for thorough and prolonged disinfection of all the excreta and goes far to explain the occurrence of cases which appeared to originate *de novo*.

In the treatment of typhoid fever we can claim that at least two advances have been made. The name of my colleague, Dr. William Cayley, will, I hope, always be associated with the introduction into this country of the method of treatment by cold bathing and other similar antipyretic measures, for their adoption was greatly due to his advocacy and use. The employment of this method has in my experience completely revolutionised the clinical aspect of the disease and has shown that when thoroughly carried out it effectually prevents the occurrence of what used to be called "the typhoid state," but which may now be defined as a state into which no typhoid patient should ever be allowed to get. How greatly

the present practice is an improvement upon that which formerly prevailed can only be realised by those who were brought up in the belief that the diarrhoea should be encouraged as nature's method of eliminating the poison and that the sheet-anchor of treatment was the routine administration of enormous quantities of stimulants.

Surgery has come to the aid of medicine in the effective treatment of perforation of the intestine in typhoid fever and it may be confidently predicted that in a short time it will be generally recognised that immediate operation is necessary for the relief of that condition.

To Sir A. E. Wright and Lieutenant-Colonel David Semple, R.A.M.C., we are indebted for the introduction of the anti-typhoid vaccine and accumulating experience shows that it exercises a very decided protecting influence. The following is one of the most recent examples. In August and September, 1905, 150 persons connected with the 17th Lancers, the regiment being about to proceed to India, were inoculated against enteric fever. Of these 25 refused to submit to the second inoculation. The regiment arrived in India on September 28th; at the end of October enteric fever broke out and there were 63 cases of the disease. Of these 61 cases occurred amongst the uninoculated and only two amongst the inoculated, both of them men who had refused the second dose of the vaccine. Here the uninoculated living under the same conditions as the others supplied an efficient control experiment. It is interesting to learn that Lord Kitchener has expressed a decided opinion that all soldiers about to proceed to India should be inoculated against enteric fever.

It is impossible to read without admiration the story of the researches into the causation of dysentery which have been carried on by scientific workers in all parts of the world during the last 30 years. The outcome appears to be a subdivision of the disease into two forms instead of three—viz., bacillary and amoebic. One learns how much patient labour has been required to unravel the mysteries attendant upon the varieties in form, in cultural character, and in agglutinative and fermentative reactions of the many different types of the bacillus of dysentery and how greatly our knowledge of the infective agent, of its mode of transmission and of its possible effects has been thereby extended. Amongst its manifestations, infantile diarrhoea, both in summer and winter must

now be included. Fortunately, the practical application of this advance in knowledge has been immediate; a serum which is both bactericidal and antitoxic has been prepared and it is claimed that by its use in the early stages of bacillary dysentery either cure or marked amelioration may be looked for and that in all stages the results are far better than those given by any other method of treatment.

We are to have the pleasure during the session of hearing a paper by Colonel David Bruce, R.A.M.C., on the subject of Malta Fever, with which disease his name as the discover of the parasite will always be associated. The important share which Colonel Bruce has also taken in tracing the chief source of the infection to the milk of the goats of the island will not be forgotten. This knowledge has happily been followed by an almost complete disappearance of the disease from amongst the military population. The civil element appears still to prefer the disease to the remedy. The army should be specially grateful to Colonel Bruce for ridding it of a scourge which, although not the cause of a high percentage mortality, has been fruitful of prolonged illness and great suffering. The mere money value of this discovery may be realised from the fact that in 1905, out of a garrison of 8,294 on the Malta Station, there were 643 admissions to hospital from Malta Fever and 16 deaths, whilst no less than 383 men were invalided home. The principal medical officer states in his report that "Malta Fever is responsible for a large proportion of serious cases in hospital, deaths and invaliding, and has taxed the nursing staff to the utmost, many of the staff having contracted this disease in the performance of their duties."

Owing to its increasing prevalence in this country, attention has recently been much directed to epidemic cerebro-spinal meningitis, which one remembers as a disease mentioned in text-books, but so rarely seen that but little importance was attached to it. It is just 20 years since its essential cause was recognised, and by much careful research and observation our knowledge of it has been greatly extended. The discovery by Kernig of the sign which bears his name gave valuable aid in the diagnosis of this and other forms of meningitis, and in the lumbar puncture we have acquired a most interesting addition to our methods of diagnosis and treatment. If the hopes that were first entertained of the utility of this proceeding have not been entirely realised, there can be no doubt that when intracranial pressure is in excess its employment may save the



patient from impending death and that by its use and repetition relief may be given to many of the most urgent symptoms of the disease.

The physician may also, I think, claim some share of the credit of the relief of optic neuritis in cerebral tumour and some other conditions accompanied by increase of intracranial pressure obtained by trephining the skull.

The specific organism of small-pox has at length been recognised: for Councilman, whose work in this connection is well known, writes with confidence that the bodies to which, by their discoverer, Guanieri, the name of *Cytoryctes variolæ* has been given are parasites and the cause of the disease. The appearance of these bodies is coincident with the earliest changes in the epithelial cells of the skin, and the progressive development of the vesicles is due to an increase of the virus and its spread to neighbouring epithelial cells. In all vaccine lesions, whether in man or animals, similar bodies are found, and the identity of the virus of small-pox and vaccinia is clearly established. It would seem that in vaccinia the organism reaches a degree of development short of that attained in small-pox.

There is no better example of the insusceptibility of the English character to the inoculation of the teachings of science than is afforded by the history of vaccination, or better object lesson than the fact that at the present time a Royal Commission on Vaccination is sitting. It is interesting to note that, notwithstanding the opposition of faddists, science has prevailed, as it must always in the end, and that the principle underlying the practice of vaccination has now become the basis of the most advanced method of treatment of the diseases due to the infection of micro-organisms.

At another Royal Commission now sitting, 12,818 questions had been asked up to the end of July, mainly with a view to determine whether the progress of medical science has been in any way assisted by experiments made on living animals. I think the whole of the medical profession, particularly those members of it engaged in scientific research, is under a deep debt of gratitude to Lord Justice Fletcher Moulton for his evidence given before that Commission. It is a statement of the case for vivisection by a layman which, in my opinion, has never been surpassed in precision of thought, in aptness of illustration, or in clearness of

exposition. It should be printed as a pamphlet and circulated wherever the unscrupulous literature of antivivisection finds its way. It is especially valuable because, as Lord Justice Fletcher Moulton states at the outset, it is the result of years of careful observation. "Having been a politician and realising that the public take to themselves the right and the duty of controlling everything that goes on in the kingdom, I have realised for many years that the question which this Commission is directed to consider would come on in some form or other in the way of an inquiry, that in other words the justification for scientific research in connection with curative science would be examined. As I have in many other things observed, the advance of science takes the workers in science more and more beyond the ken of the ordinary public, and their work grows to be little understood and much misunderstood, and I have felt that the need would come for interpreters between those who are carrying on scientific research and the public in order to explain and justify their work." Science can desire no clearer interpretation of its aims and methods than that contained in the evidence of Lord Justice Fletcher Moulton.

Surely there must be elements of surpassing excellence in the character of a people which can hold so high a place amongst the nations of the world in spite of its contempt for the advantages of education and the discoveries of science. Let us hope that Great Britain will continue to hold its place, but see reason to mend its ways.

Measles is a disease to which all mankind, from the age of about one year upwards, appear to be susceptible, and, owing to its extremely infectious character, especially in the pre-eruptive and early stages, a general knowledge of the signs by which it may then be recognised is a matter of importance to the community. The discovery by Koplik of such a sign is a most valuable contribution to medicine. His description of the lesion is as follows: "If we look in the mouth at this period [invasion] we see a redness of the fauces; perhaps not in all cases a few spots on the soft palate. On the buccal membrane and inside of the lips we invariably see a distinct eruption which consists of small irregular spots of a bright red colour. In the centre of each spot there is noted in strong daylight a minute bluish-white speck. These red spots, with accompanying speck of bluish-white colour, are absolutely pathognomonic of beginning measles, and when seen can be relied upon as a fore-

runner of this eruption." These spots appear to be present in about 95 per cent. of cases of measles, usually one or two days before the eruption appears on the skin.

Our knowledge of the pathology of pneumonia, perhaps the most interesting of all diseases to the physician—for in none may there be witnessed such a rapid transition from a condition of the gravest danger to life to one in which recovery is almost certainly assured—has made great advances during the last three decades. It is now unhesitatingly classed amongst the acute infectious disorders, thus justifying the view long held by von Jurgensen and always strongly supported by the late Sir Andrew Clark. Our treatment of the disease has become less meddlesome and more rational. The enormous quantities of stimulants thought by some in my younger days to be necessary in all cases are no longer given, and the value of the judicious use of antipyretic measures is generally recognised. We are still without any specific treatment for pneumococcal infection, for the organism does not, like the causative agents of diphtheria, readily lend itself to the preparation of an antitoxin. The Society has arranged for a discussion on pneumococcal infections, to be opened by Professor W. Osler, which will, I trust, throw light upon the pathology and treatment of a great variety of affections until lately regarded as independent diseases, but now recognised as due to a single exciting cause.

The period under review would be memorable in the history of medicine for the advance of our knowledge of tropical diseases, even if that stood alone. If it is possible to convince the Government and people of this country of the value of scientific research for its own sake, and of the necessity for its liberal endowment, it should surely come from the demonstration of the dependence of malaria upon the action of pathogenic protozoa, and of the carriage of the organisms by the different species of the mosquitoes of the genus *Anopheles*, work in which British medicine has played such a distinguished and honourable part.

It is a duty and pleasure to acknowledge the support which such researches invariably received from Mr. Joseph Chamberlain when at the head of the Colonial Office, a bright and quite unusual example on the part of a statesman of appreciation of the claims of science to official recognition. No country in the world is so deeply interested as Great Britain in the attempt to render the tropical and subtropical regions habitable at all seasons by Europeans,

and already there has been a most marked diminution in the incidence of, and mortality from, malaria in districts where the problem of the destruction of the breeding places of the mosquito has been systematically attacked. The best example of what may be done is afforded by the action taken at Ismailia, where in 1885 the number of persons attacked was 2,000; in 1895, 1,350; and in 1905, 37. Since 1904, nearly all the cases have been relapses amongst persons previously infected. Since last year all trace of malaria has disappeared from Ismailia.

The recent history of yellow fever is a fascinating and exciting story, replete with incidents of self-sacrifice in the cause of science worthy of the recognition which is reserved for deeds of valour on the field of battle. Its earlier chapters form a record of careful and often accurate observations which led to little but confusion and mystery until illumined by the discovery that the mosquito—*Stegomyia fasciata*—is the carrier of the disease, a fact now as well established as that the *Anopheles* carry the organisms of malaria.

Havana, for long one of the chief endemic foci of yellow fever, has already been practically freed from it by the adoption of measures similar to, but not quite the same as, those found efficacious in dealing with malaria. Colonel Gorgas, Assistant Surgeon-General in the United States Army, now the chief sanitary officer in charge of the Panama Canal works, and previously employed in Havana, states that it only took seven months to free Havana from yellow fever. The Americans took possession of the Panama Canal zone in 1904, and the last case of yellow fever occurred in December, 1905, a period of 16 months, the length of which Colonel Gorgas deplures. But I think, considering that the extreme prevalence of this disease was the main cause of the previous failures to construct the canal, he may regard it as a not very unsatisfactory result of his labours. Colonel Gorgas states: "I am inclined to think that the advances made in recent years in tropical sanitation will have a much wider and more far-reaching effect than freeing Havana from yellow fever, and enabling us to build the Panama Canal. I think the sanitarian can now show that any population coming into the tropics can protect itself against malaria and yellow fever by means that are both simple and inexpensive; that with these two diseases eliminated life in the tropics for the Anglo-Saxon will be more healthful than in the temperate zone; that gradually within the next two or three



centuries tropical countries, which offer a much greater return for man's labour than do those in the temperate zone, will be settled by the white races ; and that, again, the centres of wealth, civilisation, and population will be in the tropics as they were in the dawn of man's history rather than in the temperate zone as at present." If this dream is ever realised and London comes to be regarded as "the back of beyond," whilst all the world waits to know what they are thinking on the shores of the Victoria Nyanza, it will be scientific research in medicine which has rendered possible such a stupendous change.

The discovery of trypanosomes as the cause of various diseases of man and animals is an event of interest and importance equal to, if not greater than, that just referred to. If we consider the extensive area of the earth's surface over which these diseases prevail, the enormous mortality from sleeping sickness, so great, indeed, that large native populations are now in process of extinction in Africa owing to its ravages, and the great losses of horses, cattle, and other domestic animals from the tsetse-fly disease, we shall begin to appreciate how great is the gain which may follow from this advance in knowledge.

The importance of the additions to our knowledge of cholera can hardly be overstated. The pathogenic organism has been recognised, and the proof is clear that the disease follows the lines of human travel and that man is the carrier of the virus.

The cause of plague is no longer a mystery and the measures which should be taken to prevent its entrance into a community and to limit its spread are clearly indicated, and their application when thorough is efficient to those ends ; but, unfortunately, amongst the native races which furnish its chief victims ignorance and prejudice continue to a great extent to frustrate the best efforts to stamp out the disease. In an appreciation of the work of Professor Haffkine and in reference to the prophylactic against plague which he has introduced, and of which 6,000,000 doses have been used in India alone, Ronald Ross states : "I suppose that no one living or dead except Jenner has saved so much life as he has."

Plague, cholera, and yellow fever are the three epidemic diseases which have been responsible for the greatest mortality amongst mankind. To have shown how one alone could be prevented would have shed lustre on any period in medical science.

Acute rheumatism is a disease in which I have always taken

a special interest, having in my student days been a sufferer from it and having on an observation made on my own case founded my first paper on a medical subject. It was entitled "On the Association of Affections of the Throat with Acute Rheumatism." It is now generally recognised that tonsillitis is frequently followed by acute rheumatism and its recognition, leading as it has done to the early administration of antirheumatic remedies in that and other allied affections of the throat, has, I feel confident, prevented in many cases the subsequent occurrence of rheumatic fever. Dr. F. J. Poynton, our senior honorary secretary, whose work has thrown so much light upon the pathology of acute rheumatism, and in whose presence I speak with diffidence, states that striking examples occur which show that the throat is one of the channels of infection. The introduction of the salicylate treatment of acute rheumatism was a great advance in therapeutics and of its value there can be no doubt. My own impression is decided that the incidence of pericarditis has considerably diminished since its introduction. On the general question of the pathology of the disease I venture to express my opinion that the views which Dr. Poynton and Dr. A. Paine have put forward, based as they are upon most careful researches and confirmed by many independent observers, will in the near future meet with complete acceptance, and that the organism which they have isolated and named the *Diplococcus rheumaticus* will prove to be the specific cause of the disease.

It is just 30 years since Dr. W. M. Ord, who was at a later period President of this society during my term of office as honorary secretary, read at the Royal Medical and Chirurgical Society his paper on "Myxœdema, a term proposed to be applied to an Essential Condition in the 'Cretinoid' Affection occasionally observed in Middle-aged Women." It may, I think, be affirmed that no one at the time had realised that a gland which has no excretory duct may furnish an internal secretion essential to metabolism, yet some of the most interesting problems in the medicine of to-day are connected with the effects of internal secretions.

The chapter in the history of medicine which deals with the diseases of the thyroid gland is brilliant and fascinating and has been almost entirely written in our own time. First comes the recognition of the symptom-complex, then it is given a name,

“myxœdema,” then a train of symptoms is observed to follow upon the removal of the thyroid gland; their likeness to myxœdema is recognised, the dependence of myxœdema, cachexia strumipriva, and cretinism upon the loss of function of the thyroid gland is made clear, and last and greatest triumph of all comes the proof that all these conditions are capable of cure by the administration of the gland or of an extract of it.

Writing in 1876 of the diseases of the pancreas, Bristowe says: “Very little of clinical value is known about the diseases of the pancreas.” It recalls the contents of the chapter on the snakes in Ireland. If this is contrasted with our present-day knowledge of acute pancreatitis, hæmorrhagic, suppurative, or gangrenous, of chronic pancreatitis and its relation to diabetes, and to obstruction of the duct by pancreatic calculi and gall-stones, of pancreatic cysts and new growths, it will be seen how far we have progressed since that date.

The contrast between now and then is equally marked in relation to the diseases of the alimentary canal. We have learned the importance of maintaining so far as possible an aseptic condition of the mouth and of the grave disorders of the blood which may arise from the constant presence of micro-organisms in and around the teeth. Our knowledge of the physiology and pathology of secretion and digestion has made such enormous advance during this period that to describe in the briefest outline what has been done would require a longer time than I can venture to give to medicine as a whole.

Medicine may surely claim from surgery some share of the credit due for the more accurate diagnosis and efficient treatment of many gastric diseases, and especially of gastric ulcer and duodenal ulcer.

I have left myself no time for more than a passing reference to the fact that in recent years a new science of hæmatology has been created. It is now realised that an accurate knowledge of the state of the blood is essential for the diagnosis and prognosis of a variety of affections too numerous to mention. In the clinical laboratory of every general hospital there are workers whose whole time is occupied with these observations upon the blood.

To do justice to the advance in the knowledge of the diseases of the nervous system would require not one but many hours. Here, again, the infective nature of many cerebral and spinal diseases has

become manifest. We have learned to differentiate the various forms of meningitis and the relation of posterior basic meningitis to the epidemic form. Bacteriology has already thrown light on the causation of Landry's paralysis and of acute poliomyelitis, and will give more aid in the future in those and other diseases. The advance in the localisation of the functions of the brain by itself marks an epoch, and the success now obtained in the treatment of hysteria and allied conditions has removed a reproach to medicine.

Surely it is impossible for anyone acquainted with the facts which I have only been able to sketch in the merest outline, an outline from which the improvements in pharmacy and many branches of therapeutics have been entirely omitted, to maintain that medicine stands where it did. Rather I would claim that, having regard to the wide field which it covers, the advance of medicine has been, during the last 30 years, infinitely greater in the mass than that of surgery, although not perhaps so readily appreciable by the public. What of the future? Of that I believe we need have no fear. It will far outstrip the past. We are as yet but on the threshold of the knowledge which will illumine all the dark recesses of that ignorance which is shared by medicine with all the other sciences, and which in our several spheres it is the duty of each one of us to attempt to remove.









